Listing of Claims

1. (Currently Amended) A system, comprising:

a detector to detect a voltage stored in an ultracapacitor; and

an extractor to extract energy from the ultracapacitor, the extractor including:

a first amplifier circuit to amplify an output voltage from the ultracapacitor when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor;

a divider to divide the amplified voltage to form a first control signal for the first amplifier circuit; and

a controller to generate a second control signal to vary a ratio of the divider, the varied ratio adjusting the first control signal to maintain the output voltage of the ultracapacitor substantially equal to or above the first predetermined voltage of the load, the first amplifier circuit to amplify the output voltage independent of coupling the ultracapacitor to a DC power source during a charging operation of the ultracapacitor and during a time when the load is to be driven by the amplified output voltage.

2. (Previously Presented) The system of claim 1, wherein the first amplifier circuit is to amplify said output voltage of the ultracapacitor to a level substantially equal to or above the first predetermined voltage during a time when the detected voltage of the ultracapacitor is above a second predetermined voltage of the first amplifier circuit.

3-5 (Canceled)

6. (Previously Presented) The system of claim 1, further comprising:

a second amplifier circuit to adjust impedance of the amplified voltage output from the first amplifier circuit.

7-9 (Canceled)

10. (Currently Amended) A system, comprising:

a detector to detect a voltage stored in an ultracapacitor; and

an extractor to extract energy from the ultracapacitor, the extractor including:

an adiabatic amplifier to amplify voltage output from the ultracapacitor when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor, wherein the adiabatic amplifier includes:

first and second transmission gates that are alternatively switched to output an amplified differential signal that corresponds to the amplified voltage of the ultracapacitor, wherein the adiabatic amplifier is to amplify the voltage output from the ultracapacitor independent of coupling the ultracapacitor to a DC power source during a charging operation of the ultracapacitor and during a time when the load is to be driven by the amplified output voltage.

11. (Previously Presented) The system of claim 10, further comprising:

a controller to monitor a change in the amplified voltage; and

a voltage regulator to adjust the amplified differential signal to cause the amplified voltage of the ultracapacitor to be substantially equal to or above the first predetermined voltage.

12. (Canceled)

13. (Original) The system of claim 1, wherein the extractor is a DC-to-DC boost converter.

14. (Currently Amended) A method, comprising:

detecting a voltage stored in an ultracapacitor; and

extracting energy from the ultracapacitor when the voltage falls below a predetermined value, said extracting including:

amplifying an output voltage from the ultracapacitor using a first amplifier circuit, the output voltage amplified when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor;

dividing the amplified voltage using a divider to form a first control signal for the first amplifier circuit; and

generating a second control signal to vary a ratio of the divider, the varied ratio adjusting the first control signal to maintain the output voltage of the ultracapacitor substantially

equal to or above the first predetermined voltage of the load, the first amplifier circuit to amplify said output voltage independent of coupling the ultracapacitor to a DC power source during a charging operation of the ultracapacitor and during a time when the load is to be driven by the amplified output voltage.

15. (Canceled)

16. (Previously Presented) The method of claim 14, wherein the varied ratio adjusts the first control signal to maintain the output voltage of the ultracapacitor substantially equal to or above the first predetermined voltage during a time when the detected voltage of the ultracapacitor is above a second predetermined voltage of an amplifier circuit that is to perform said amplifying.

17. (Previously Presented) The method of claim 16, further comprising:

detecting a reduction in the increased voltage over time; and

adjusting the reduced voltage to maintain at least the predetermined voltage of the load.

18-19 (Canceled)

20. (Previously Presented) The method of claim 14, wherein said amplifying is performed by a circuit which includes an adiabatic amplifier.

21-24 (Canceled)

25. (Currently Amended) A system, comprising:

a load;

an ultracapacitor storing a voltage to drive the load; and

an extractor to extract energy from the ultracapacitor, the extractor including:

a first amplifier circuit to amplify an output voltage from the ultracapacitor when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor,

a divider to divide the amplified voltage to form a first control signal for the first amplifier circuit; and

a controller to generate a second control signal to vary a ratio of the divider, the varied ratio adjusting the first control signal to maintain the output voltage of the ultracapacitor substantially equal to or above the first predetermined voltage of the load, the first amplifier circuit to amplify said output voltage independent of coupling the ultracapacitor to a DC power source during a charging operation of the ultracapacitor and during a time when the load is to be driven by the amplified output voltage.

26. (Canceled)

27. (Original) The system of claim 25, wherein the load is at least one of a power supply, processor, cache, chipset, and a memory.

28. (Original) The system of claim 25, wherein the load, ultracapacitor, and extractor are included on a single die.

29. (Previously Presented) The system of claim 2, wherein the first predetermined voltage corresponds to a minimum operating voltage of the load.

30. (Previously Presented) The system of claim 29, wherein the second predetermined voltage corresponds to a minimum operating voltage of the first amplifier circuit

31. (Previously Presented) The system of claim 30, wherein the extractor is disabled when a voltage of the voltage source falls below a second predetermined voltage of the extractor.

32. (Previously Presented) The system of claim 31, wherein the first predetermined voltage corresponds to a minimum operating voltage of the load.

33. (Previously Presented) The system of claim 32, wherein the second predetermined voltage corresponds to a minimum operating voltage of the extractor.

34. (Previously Presented) The system of claim 2, wherein the extractor is disabled when the detected voltage of the ultracapacitor falls below the second predetermined voltage of the first amplifier circuit.

35. (Previously Presented) The system of claim 1, wherein the ultracapacitor is to be coupled to the load along a first signal path when the detected voltage is above the first predetermined voltage and wherein the ultracapacitor is to be coupled to the load along a second signal path passing through the extractor and disconnected from the first signal path when the detected voltage is below the first predetermined voltage.

36. (Previously Presented) The system of claim 1, wherein the divider includes a network of variable resistors.

37. (Previously Presented) The system of claim 36, wherein the second control signal is to vary values of the variable resistors to change amplification of the first amplifier circuit, the changed amplification causing the output voltage of the ultracapacitor to be substantially equal to or above the first predetermined voltage of the load.

38. (Previously Presented) The system of claim 1, wherein the ratio of the divider is continuously changed by the controller as the detected voltage of the ultracapacitor changes over time.